CANCER – Cost Studies

PCN25

THE BUDGETARY IMPACT OF PEMETREXED MAINTENANCE THERAPY FOR ADVANCED NONSQUAMOUS NON-SMALL CELL LUNG CANCER

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OBJECTIVES: Pemetrexed (Pem) was recently approved in the US for maintenance treatment of patients with advanced nonsquamous non-small cell lung cancer (NSCLC) whose disease has not progressed after 4 cycles of platinum-based first-line chemotherapy. The objective of this study was to estimate the budgetary impact of adopting Pem in this new indication from a US health plan's perspective. **METHODS:** A deterministic model was developed from the perspective of a one-million member health plan. A survey of 300 oncologists was used to estimate the market shares of maintenance therapies before and after introducing Pem. Drug costs were obtained from Medicare reimbursement rates; non-drug costs from a claims database analysis. The number of maintenance-eligible patients was calculated from SEER incidence rates and the estimated proportions of NSCLC patients beginning and completing platinum-based first-line chemotherapy with stable disease or better. Model outputs included annual health plan cost, and costs per member per month (PMPM) and per treated member per month (PTMPM). One-way sensitivity analyses assessed the effect of changing input values. **RESULTS:** Assuming a 50% increase in the number of patients receiving maintenance therapy from 26 to 39 in a one-million member health plan, the model estimates a total annual cost increase of $365,323. Savings from patients who would have continued first-line therapy at an annual cost of $48,253 result in an estimated net budget impact of $317,070 translating into a PTMPM of $679.22 and PMPM of $0.026. The PMPM is sensitive only to the expected increase in maintenance use. **CONCLUSIONS:** The adoption of Pem as maintenance therapy is anticipated to increase the number of patients receiving maintenance treatment while reducing the number of patients continuing first-line therapy. This increase in maintenance therapy utilization is expected to increase the budget impact for a health plan by less than $0.03 per member per month.

PCN26

BUDGET IMPACT ANALYSIS OF AN ORGANIZED BREAST CANCER SCREENING PROGRAM BASED ON ANNUAL MAMOGRAPHY FOR COLOMBIAN WOMEN

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OBJECTIVES: Evaluate the budget impact of substituting the current recommendation of the Colombian National Cancer Institute (CNCI) for the early detection of breast cancer in Colombia for an organized screening program based on annual mammography for women 40–69 years (OgSP). METHODS: A previous cost-effectiveness study funded by the CNCI showed that the OgSP was more effective but more expensive than the current recommendation of the CNCI, opportunistic screening based on biennial mammography for women 50–69 years and annual breast clinical exam for women 30–69 years (OpSP). A spreadsheet model following the ISPOR task force recommendations was developed to compute the annual, average, total, per-member-per-month (PMPM) and per-treated-member-per-month (PTMPM) costs and budget impact of the OgSP in four years. All inputs were based on local information and included Colombian population growth, age and gender distributions, breast cancer incidence rates in Colombian women and number of women eligible for breast cancer screening; mammography and clinical exam specificity, sensitivity and costs; opportunistic and organized program coverage and costs, and diagnosis confirmation exams and breast cancer treatment costs. RESULTS: Total cost PTMPM was estimated to be $121 for the OpSP. With the new proportional share, it would increase to $241, a 99% increase. 98% of the costs came from the greater number of mammograms given the nature of the OgSP, and the greater number diagnosis confirmation exams and treated women given the major effectiveness of the OgSP in breast cancer detection. Results remained favorable for OpSP under all sensitivity analyses. CONCLUSIONS: The impact of substituting the current OpSP for the OgSP will yield very high costs to the Colombian health care system budget. Decision makers should consider other strategies for the early detection of breast cancer screening, more effective than the current OpSP and affordable, using the developed model to evaluate the budget impact of the new streategies under consideration.

PCN27

ESTIMATED IMPACT OF EVEROLIMUS ON ANNUAL DRUG EXPENDITURE IN THE TREATMENT OF ADVANCED RENAL CELL CARCINOMA IN A US HEALTH PLAN

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OBJECTIVES: To estimate the impact of the introduction of everolimus on drug spending for a hypothetical health plan in the US. **METHODS:** A cross-sectional model was developed using a one-year time horizon. The model included National Comprehensive Cancer Network guideline-recommended advanced RCC treatments: bevacizumab, IFN, IL-2, sorafenib, sunitinib, temsirolimus and everolimus. Disease prevalence rates were based on literature and Surveillance Epidemiology and End Results. Monthly market share data prior to the introduction of everolimus were based on the data from IntrinsiQ (November 2007–October 2008). Due to a lack of comparative trials, adverse event rates in similar patient populations are unavailable. As such, this model assessed only pharmacy budget, with relevant costs including that of drug therapy and administration. Drug costs were based on Wholesale Acquisition Costs (2009). Furthermore, as best supportive care and palliative care alongside each treatment were assumed to be comparable, their costs were not presented in the model. The model assessed the annual incremental impact on pharmacy expenditure under the assumption that everolimus replaces drugs currently being used after failure of treatment with sunitinib or sorafenib such as bevacizumab, temsirolimus, sunitinib, sorafenib, interferon-alpha, and interleukin-2. **RESULTS:** For a hypothetical health plan with 1,000,000 members, the model estimated a prevalence of 203 patients with advanced RCC. Under various scenarios, assuming that 24% of advanced RCC patients are placed on everolimus, the impact on pharmacy expenditure ranged from a savings of $50,093 annually or $0.05 per patient per year (PMPY) to an increase of $43,749 annually or $0.04 PMPY. **CONCLUSIONS:** Under the current model assumptions, everolimus has a minimal impact on pharmacy expenditure for a US health plan. It may offer cost savings when replacing higher-cost therapies.

PCN28

BUDGET IMPACT ANALYSIS OF NEW PROSTATE-SPECIFIC ANTIGEN ASSAY AND INDEX FOR PROSTATE CANCER DETECTION

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OBJECTIVES: To evaluate the budget impact of adding a new assay and prostate cancer (Pca) detection index to conventional prostate-specific antigen (PSA) blood test for detecting Pca. **METHODS:** Access Hybritech p2PSA is a precursor form of PSA. It is a new assay and being tested for use with PSA and free PSA to calculate a Pca detection index to determine the relative risk of Pca. The index is in development for U.S. market pending Food and Drug Administration approval. We constructed two budget impact models using PSA cutoff values of 2 ng/ml (Model1) and 4 ng/ml (Model2) for recommending biopsy in a hypothetical health plan with 100,000 male members aged 50 to 75 years old. Probabilities of positive PSA test results and cancer detection were derived from the published literature as well as a simulation study of the Pca detection index. We calculated the budgetary impact after introducing the Pca detection index on the one-year expected total costs for Pca detection. Sensitivity analysis was performed to examine the robustness of results. **RESULTS:** After introducing the Pca detection index, the number of cancer cases detected decreased by 50 and 30, in Model1 and Model2, respectively. The savings on total costs for the individuals with a positive PSA test were $284,151 in Model1, and $109,387 in Model2. The budget impacts on total costs for the individuals with a negative test were $22,127 (Model1) and $8,518 (Model2). The savings on expected one-year cost for Pca detection were $262,024 (or $0.22 per-member-per-month (PMPM)) in Model1, $100,869 (or $0.08 PMPM) in Model2. **CONCLUSIONS:** The model with PSA cutoff >2 ng/ml produced higher cost savings than the model with cutoff >4 ng/ml. However, a small short-term reduction in the number of positive PSA tests was also observed.

PCN29

REAL WORLD DATA ON MULTIFRACTION (MFR) VERSUS SINGLE FRACTION (SFR) RADIOTHERAPY TO TREAT BONE METASTASIS: IMPACT IN COSTS FOR PRIVATE HEALTH CARE (PHC) PROVIDERS IN BRAZIL

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OBJECTIVES: There is available evidence from a systematic review with meta-analysis that MFR and SFR have comparative efficacy in the treatment of bone metastasis. We aimed to compare the costs of MFR (20 Gy in five applications or 30 Gy in ten applications) versus SFR in the treatment of bone metastasis and pain control and determine the budgetary impact for PHC providers in Brazil. **METHODS:** all patients submitted to antalgic palliative radiotherapy for bone metastasis, from January 2009 to December 2009, were retrieved from Evidencias Cancer Treatment Database (www.evidencias.com.br). We evaluated a 50.000 lives' HPC and projected the results for a 1,000,000 population. We used data from the above mentioned SR with MA to support the calculations of the projected costs for both types of treatment. **RESULTS:** The annual incidence of patients in need of antalgic palliative radiotherapy for bone metastasis was 140/per million. The SR with MA determined that MFR and SFR are equally effective in palliating bone pain with the same risks of complications. However SFR increases the need of re-treatment (RR = 2.5; CI95% 1.76 to 3.56), or 19.9% for SFR versus 7.8% for MFR (level of evidence 1b). We calculated the cost of each treatment as MFR USD 2,456,11 /patient and SFR USD 1,734,98 /patient. The projected costs in a population of 1 million insured lives including re-treatment costs was USD 370,872,77 for MFR versus USD 291,476,66 for SFR. The difference of USD 79,396,11 represents USD 0,08/per life insured/per year. **CONCLUSIONS:** Since both types of radiotherapy are equally effective, and SFR provides an economy of USD 0.08 per life/per year, it should be the preferred choice.